

<b>PRE-APPEAL BRIEF REQUEST FOR REVIEW</b>		Docket Number (Optional): <b>P114-US</b>								
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Application Number: <b>09/527,931</b> Filed: <b>3/17/2000</b>  First Named Inventor: <b>Mathieu</b>  Art Unit: <b>3726</b> Office Action: <b>Rick K. Chang</b>										
<p>Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.</p> <p>This request is being filed with a notice of appeal.</p> <p>The review is requested for the reason(s) stated on the attached sheet(s).            Note: No more than five (5) pages may be provided.</p> <p>I am the</p> <table> <tr> <td><input type="checkbox"/> applicant/inventor.</td> <td><u>N. Kenneth Burraston/</u> Signature</td> </tr> <tr> <td><input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)</td> <td><u>N. Kenneth Burraston</u> Typed or printed name</td> </tr> <tr> <td><input checked="" type="checkbox"/> attorney or agent of record. Registration number: <u>39,923</u></td> <td><u>(801) 426-2106</u> Telephone number</td> </tr> <tr> <td><input checked="" type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34: <u>39,923</u></td> <td><u>September 18, 2008</u> Date</td> </tr> </table> <p>Note: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.            Submit multiple forms if more than one signature is required, see below*.</p>			<input type="checkbox"/> applicant/inventor.	<u>N. Kenneth Burraston/</u> Signature	<input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)	<u>N. Kenneth Burraston</u> Typed or printed name	<input checked="" type="checkbox"/> attorney or agent of record. Registration number: <u>39,923</u>	<u>(801) 426-2106</u> Telephone number	<input checked="" type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34: <u>39,923</u>	<u>September 18, 2008</u> Date
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\*Total of 1 form(s) are submitted.

## **ARGUMENTS SUPPORTING PRE-APPEAL BRIEF REQUEST FOR REVIEW**

In support of Applicants' Pre-Appeal Brief Request For Review of the final rejection in the Office Action dated March 18, 2008 (hereinafter the "Office Action") in the above-identified patent application, Applicants respectfully submit the following:

### **I. Background:**

#### **A. Procedural History**

This application has been pending for more than eight years, and this is the third Request For Pre Appeal Brief Review. The first two Requests For Pre Appeal Brief Review resulted in the rejections being withdrawn and prosecution reopened. The Office Action that is the subject of this, the third, Request For Pre Appeal Brief Review repeats a rejection of the pending claims under 35 USC 112, second paragraph that was the subject of the second Request For Pre Appeal Brief Review. The Office Action also adds a new grounds of rejection in which all of the pending claims are rejected as obvious in view of US Patent No. 4,636,722 to Ardezzone and US Patent No. 5,990,695 to Daugherty. The pending claims are claims 71-75, 77-78, and 102-121, of which only claim 71 is independent. A copy of the claims as currently pending is in the Amendment dated August 9, 2007.

#### **B. Background Of Invention**

By way of background and not limitation, some embodiments of the invention are directed to a probe card assembly that can be used to test integrated circuits such as semiconductor dies. The probe card assembly can include a pattern of electrically conductive spring-like contact structures in a pattern that corresponds to terminals on the electric circuits to be tested. The probe card assembly can include mechanisms for changing a shape of a surface of a substrate to which the spring-like contact structures are attached.

A non-limiting example of such a probe card assembly 200 is shown in Figure 2. Contact structures 211 can be the spring-like contact structures referred to above. In the non-limiting example shown in Figure 2, each pair of screw 224 and ball bearing 226 can apply a localized pushing force to substrate 210, and the studs 238 and 240 can apply a localized pushing or pulling force to substrate 210. By applying selective localized pushing and/or pulling forces

to substrate 210, the shape of the surface to which contact structures 211 are attached can be changed. For example, the surface of substrate 210 can be changed as illustrated in Figures 3A and 3B, which shows changing a shape of a substrate 310. Note that Figures 3A and 3B are exaggerated for ease of illustration.

One use for the above-described ability of probe card assembly 200 to change the shape of the surface of substrate 210 to which contact structures 211 are attached is to adjust the shape of substrate 211 to orient all of contact structures 211 in a plane that corresponds to a plane of the terminals of the electric circuit that contact structures 211 are to contact. As illustrated in non-limiting examples in Figures 6, 7A, and 7B, a probe card assembly can include a plurality of substrates 704 (which can be like 210) each with contact structures 711 (which can be like 211) that together form a large array of contact structures 711 for contacting terminals on many electric circuits to be tested. Moreover, the probe card assembly can include mechanisms for applying localized pushing and/or pulling forces to each substrate 704 such that the shape of each substrate 704 can be adjusted as discussed above with respect to substrate 210.

## **II. Argument:**

### **A. Rejection Under 35 USC 112, Second Paragraph:**

The Examiner rejected claims 71-75, 77-88, and 102-212 under 35 USC 112, second paragraph, on exactly the same grounds that were the subject of the Pre Appeal Brief Request For Review dated November 6, 2007, and which resulted in a Pre-Brief Appeal Conference Decision dated December 12, 2007 withdrawing this rejection. It is unclear why this rejection, after having been withdrawn in the Pre-Brief Appeal Conference Decision dated December 12, 2007, was repeated in the Office Action that is the subject of the current Pre Appeal Brief Request For Review. Nevertheless, Applicants again assert the same arguments made in the Pre Appeal Brief Request For Review dated November 6, 2007, which are on pages 1-3 in the section "II. Argument." For the same reasons that these arguments resulted in withdrawal of the rejection under 35 USC 112, second paragraph, in the Pre-Brief Appeal Conference Decision dated December 12, 2007, this rejection should again be withdrawn.

B. Rejection Under 35 USC 103(a)

Claim 71 recites “adjusting a shape of a surface of a first of said substrates without contacting said one or more devices to be tested.” In rejecting claim 71, the Examiner equated the movement of Ardezone’s probe head assembly from the position shown in dashed lines in Figure 5 to the position shown in the solid lines in Figure 5. (This occurs when Ardezone puts chamber 72 under a vacuum, which draws central rigid member 66 into contact with a bottom surface of fitting 78 (Ardezone col. 6, line 62 to col. 7, line 4).) The Examiner, however, acknowledged that the foregoing movement of Ardezone’s probe head assembly does not change the planar orientation of one probe point 62 with respect to another probe point 62. The Examiner thus conceded that Ardezone fails to disclose “wherein said adjusting a shape of a surface of a first of said substrates changes a planar orientation of a contact portion of one of a first plurality of said probes attached to said surface of said first substrate relative to another one of said first plurality of probes attached to said surface of said first substrate.”

To make up for this acknowledged deficiency in Ardezone, the Examiner relied on Daughtery. Daughtery discloses a test probe 10 with test probe contacts 18 for contacting a semiconductor die to test the die. Set screws 48 can be turned to move radial levers 36 toward or away from a frame 26, which in turn moves a side of a rigid glass pressure plate 20 up or down. By individually adjusting each of three or four such set screws 48, the plane of the rigid glass pressure plate 20 can be adjusted. Because a flexible member 16 to which the test probe contacts 18 are attached is stretched across the rigid glass pressure plate 20, the foregoing also adjusts the plane of the test probe contacts 18. For example, the foregoing can be used to adjust the plane of the test probe contacts to correspond to the plane of the circuit to be tested. (See generally Daughtery col. 4, lines 15-32 and Figure 1.)

It would not have been obvious, however, to combine Daughtery with Ardezone at least because Daughtery’s adjustment system comprising set screws 48, radial levers 36, frame 26, and rigid glass pressure plate 20 are not compatible with Ardezone’s system in which a vacuum in chamber 72 draws the probe head assembly 10 upward as shown in Figure 5. The ability of probe head assembly 10, including the flex member 64 that holds probe points 62, to move upward and away from the circuit being tested, as shown in Figure 5, is essential to Ardezone’s invention. (See, e.g., Ardezone col. 6, line 62 to col. 7, line 57.) In contrast, Daughtery’s invention must necessarily impede such an upward movement of rigid glass pressure plate 20.

This is because the radial levers 36 and frame 26 must necessarily be rigid structurally. Otherwise, the turning of a screw 48 could not cause a radial lever 36 and frame 26 to move a side of pressure plate 20 up or down. Also, if radial levers 36 and frame 26 were not rigid, the pressure plate 20 would not remain in the plane set by screws 48 as the test probe contacts 18 are pressed against the circuit to be tested; rather, the pressure on test probe contacts 18 caused by contact with the circuit to be tested would itself alter the plane of pressure plate 20. Thus, levers 36 and frame 26 must be rigid. It follows that, once screws 48 are set, levers 36 and frame 26 impede any upward movement of pressure plate 20. Therefore, if Daughtery's screws 48, levers 36, and frame 26 were combined with Ardezone and used to adjust the plane of flex member 64 and thus probe points 56, once screws 48 were set, Daughtery's levers 36 and frame 26 would prevent the essential upward movement of Ardezone's flex member 64 shown in Figure 5. In fact, Applicants respectfully assert that there is no way to utilize Daughtery's screws 48, levers 36, and frame 26 with Ardezone to adjust the plane of Ardezone's flex member 64 that would, after screws 48 set the plane of flex member 64, allow flex member 64 to move upward as shown in Figure 5 of Ardezone. Daughtery would thus destroy an essential principle of operation of Ardezone, namely, the ability of probe head assembly 10, including the flex member 64 that holds probe points 62, to move upward and away from the circuit being tested, as shown in Figure 5. At least for this reason, it would not have been obvious to combine Daughtery and Ardezone.

Applicants also note that claim 71 recites a "plurality of substrates" at least two of which can be adjusted to change its shape. The Examiner has not shown that Ardezone or Daughtery discloses use of a plurality of substrates much less the ability to change the shapes of at least two such substrates. Nor has the Examiner established that modifying Ardezone or Daughtery to include such features would be obvious. For at least this additional reason, claim 71 is patentable over Ardezone and Daughtery.

### **III. Conclusion:**

In view of the foregoing, Applicants respectfully submit that all of the claims are definite and in condition for allowance. Consequently, Applicants request that the rejections of the claims be withdrawn and all claims allowed.